Roaring Fork Transportation Authority

Climate Action Plan Update

Monthly Board of Directors Meeting
Thursday, April 13, 2023

Presentation Summary

November Board Presentation Summary

- Presentation summary
- Board Feedback and Direction
- Phased Project Approach

Technical Discovery

- Emissions Scope and Inventory
- Emissions Displaced
- Impact of Transit on Emissions

Climate Action Plan Development

- Climate Action Goals
- Regional Action
- Strategy Selection Process
- Strategy Evaluation

Action Items and Next Steps

- Final CAP presentation *(May board meeting anticipated)*

Discussion and Conclusion

November Board Summary

Presentation to RFTA Board

- Project overview and phases
- Stakeholder feedback
- Emissions baseline analysis and next steps

Board Feedback and Direction

Set bold climate action goals for 2030 and 2050 with measurable benchmarks from 2019:

- **50% emissions reduction*** by 2030
- **80% to 100% reduction*** by 2050

Assess appropriate benchmark time periods to measure reductions and revisit targets *(RFTA project team)*.

** Emissions produced by transit*

Phased Project Approach

Fall 2022

Establishing a vision for the future was a critical first step in setting a strong foundation for RFTA and its stakeholders for developing an effective climate vision and goals through professionally facilitated working session and consistent biweekly and monthly reporting on progress and outcomes

1

2

Technical discovery of RFTA's emissions profile provided baseline insights for developing an effective climate action plan with targeted emission reductions.

Climate action plan (CAP) development built upon the previous visioning sessions and technical discovery to produce strategies that are uniquely tailored toward enabling RFTA to track and accomplish its climate goals through an achievable, action-oriented programmatic approach.

3

4

Preparing for the future, an implementation and monitoring program will be created that encompasses RFTA's climate strategy, emergency mitigation priorities, progress tracking, and associated funding opportunities.

May 2023

Technical Discovery | Emissions Scopes and Inventory

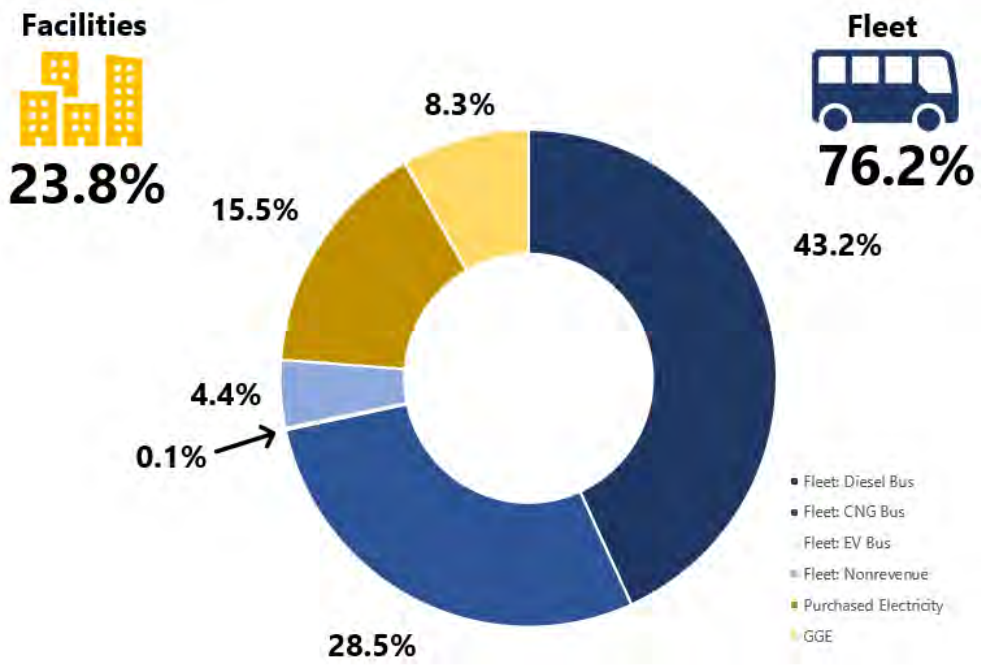
Scope 1: direct emissions from sources that are controlled or owned by RFTA

Scope 2: indirect emissions associated with the purchase of electricity

Scope 3: emissions that are the result of assets not owned or controlled by RFTA, but that RFTA indirectly affects throughout the region

Emissions Produced by RFTA (Scope 1 & 2)	
Metric	**Emissions (metric tons CO2e)**
Mobile Combustion	12,450
Agency Fleet	712
Electricity for Traction Power	23
Facility Purchased Electricity	2,690
Facility Stationary Combustion	1,440
Total	**17,315**

Emissions Displaced by RFTA (Scope 3)	
Metric	**Emissions (metric tons CO2e)**
Mode Shift to Transit	-5,094
Regional Land-Use Efficiency	-35,238
Total	**-40,332**



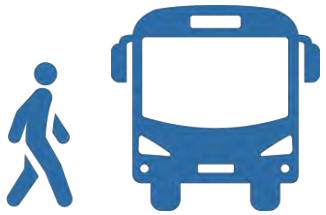
Technical Discovery | Emissions Displaced – Mode Shift

Direct effect of transit on regional vehicle miles traveled (VMT)

- Transit services → riders ride the bus → less driving, fuel use and GHG emissions

Key variables:

- Transit Passenger Miles Traveled (PMT)
- Mode Shift Factor: *the ratio of people that would drive if transit didn't exist (Estimated 33% based on recent APTA surveys)*
- **RFTA is in line with state and national averages**



5,094
metric tons displaced

Displacement Ratio:
Emissions displaced / emissions produced

RFTA: 0.41
Colorado: 0.43
National: 0.41

Technical Discovery | Emissions Displaced – Land Use

Indirect effect of transit on regional vehicle miles traveled (VMT)

- Transit investments → compact development → more walking and cycling; less driving, fuel use and GHG emissions

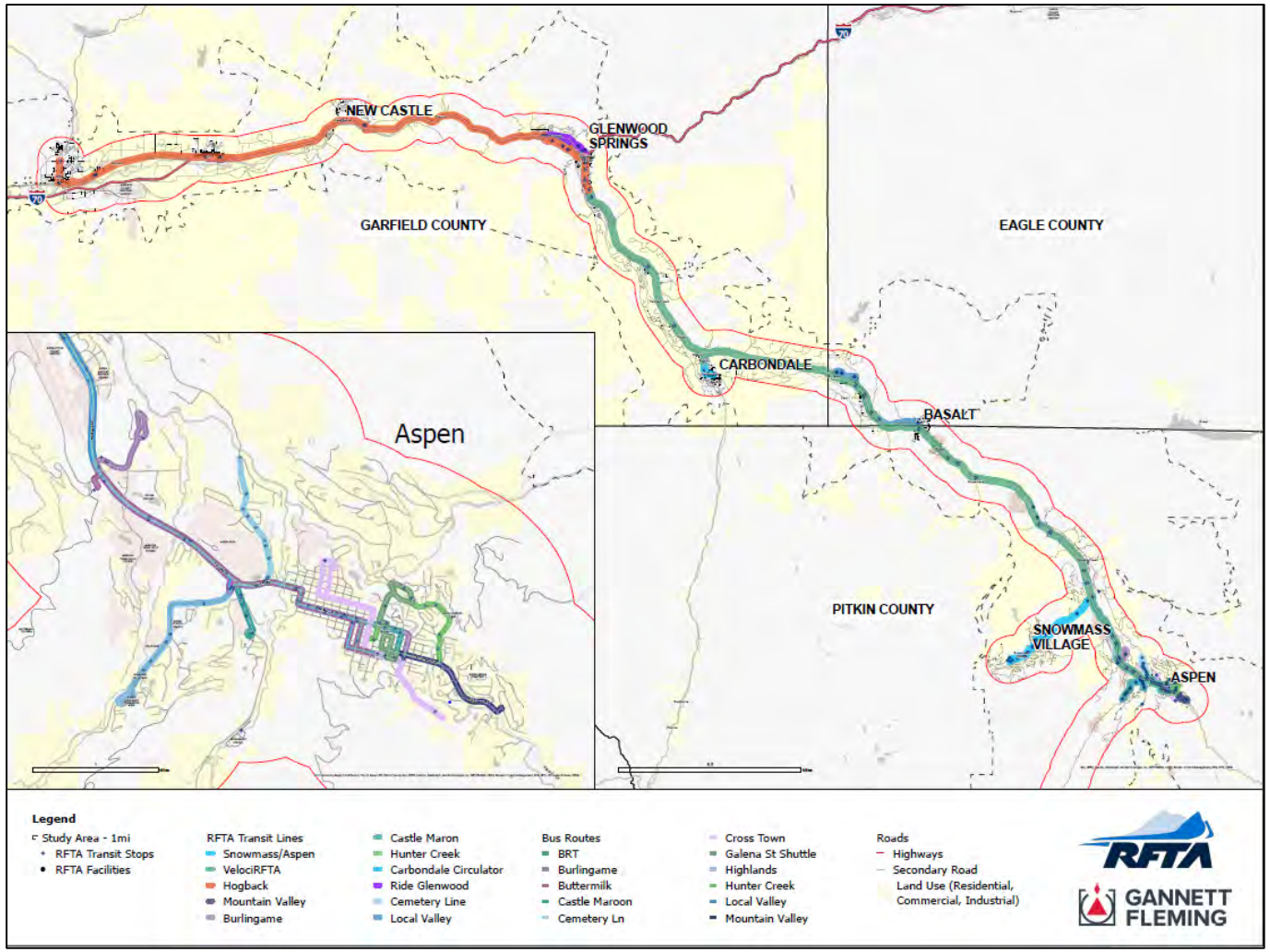
Key variables:

- First/Last Mile Options
- Transit Route Density: route miles / land area
- Regional VMT per Capita
- **RFTA is above state and national averages**

35,238
metric tons displaced

Displacement Ratio:
Emissions displaced / emissions produced

RFTA: 2.83
Colorado: 2.41
National: 2.18



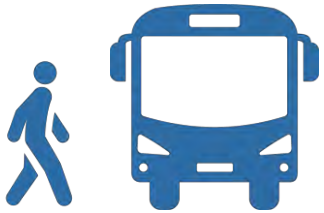
Technical Discovery | Impact of Transit on Emissions

MODE SHIFT TO TRANSIT
- Traveler choice to ride transit vs driving alone.
- **Positive impact** on GHG emissions.

LAND USE EFFECT
- Impact of condensed land use due to transits presence; encouraging less polluting modes.
- **Positive impact** on GHG emissions.

RFTA OPERATIONS
- Emissions emitted by RFTA through operating transit and administrative services.
- **Target area for climate action goal** to further reduce scope 1 and 2 GHG emissions.

Emissions Impact:
net benefit of 23,017 metric tons CO2e



2019 Baseline

5,094
metric tons displaced

35,238
metric tons displaced

17,315
metric tons produced

Technical Discovery | Impact of Transit on Emissions

EMISSIONS DISPLACED BY TRANSIT

5,094
metric tons displaced

MODE SHIFT TO TRANSIT

35,238
metric tons displaced

LAND USE EFFECT

EMISSIONS PRODUCED BY TRANSIT

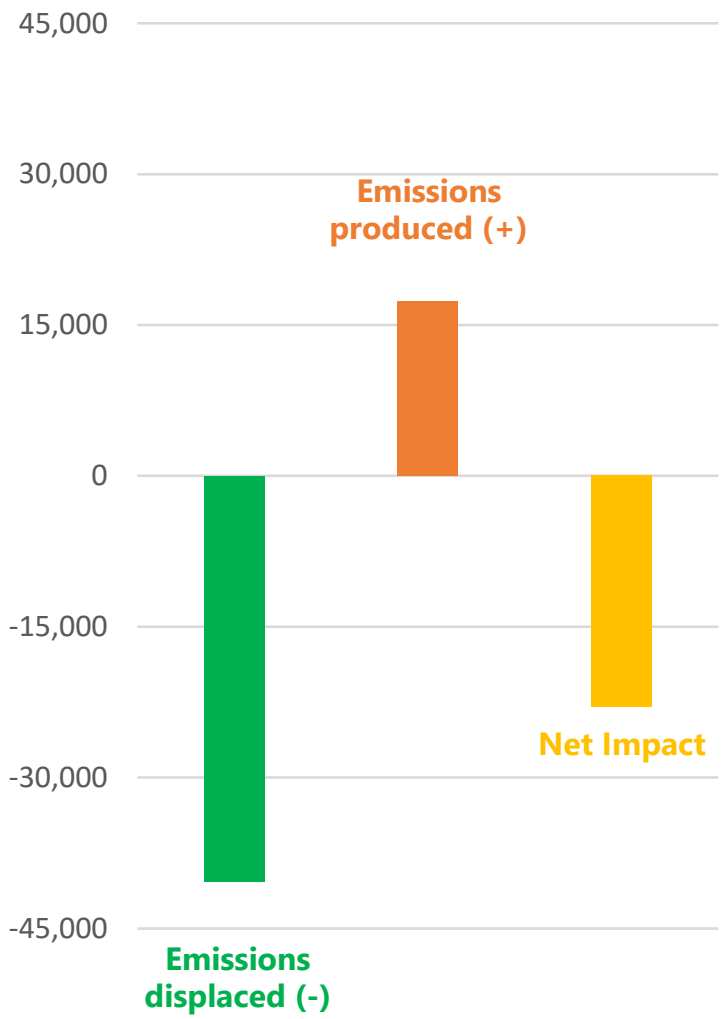
17,315
metric tons produced

2019 Baseline Inventory

- RFTA's services **displaced 40,332 metric tons** of GHG emissions.
- RFTA's operations **emitted 17,315 metric tons** of GHG emissions.
- In total, RFTA's services resulted in a **net benefit of 23,017 metric tons** of GHG emissions.

RFTA's Climate Action Goals

- Reduce **emissions produced by transit** by 50% by 2030 and 90% by 2050.
- Increase **emissions displaced by transit** to 3x RFTA's baseline in 2030 and 5x in 2050.



CAP Development | Climate Action Goals

2019 Baseline Inventory

- RFTA's services **displaced 40,332 metric tons** of GHG emissions.
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- In total, RFTA's services resulted in a **net benefit of 23,017 metric tons** of GHG emissions.

RFTA's Climate Action Goals

- Reduce **emissions produced by transit** by 50% by 2023 and 90% by 2050.
- Increase **emissions displaced by transit** to 3x RFTA's baseline in 2030 and 5x in 2050.

	2019	2026	2030	2035	2040	2050
EMISSIONS DISPLACED BY TRANSIT (Metric Tons CO2e):	40,332	46,138	51,944 3x	63,487	75,030	86,574 5x
EMISSIONS PRODUCED BY TRANSIT (Metric Tons CO2e):	17,315 Baseline	12,986	8,657 -50%	6,348	4,040	1,731 -90%

CAP Development | Regional Action

	2019	2026	2030	2035	2040	2050
RFTA REGIONAL NET EMISSIONS IMPACT (Metric Tons CO2e):	23,017	33,152	43,287	57,138	70,990	84,842

RFTA's Regional Impact

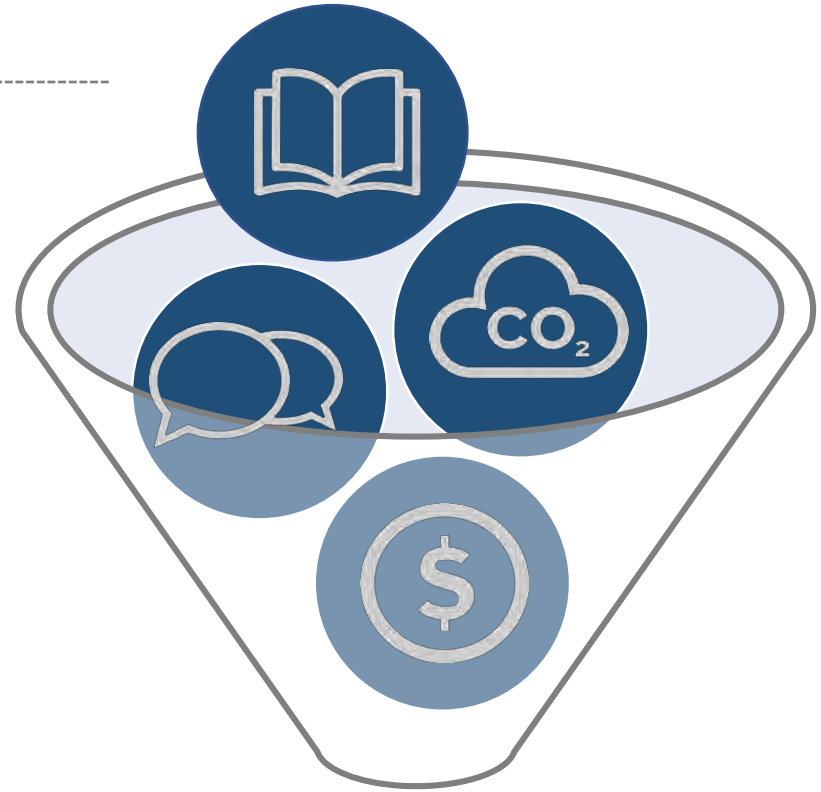
- In total, RFTA's services resulted in a regional **net benefit of 23,011 metric tons** of GHG emissions.
- RFTA's goals of increasing displaced emissions will result in a **net benefit of 84,872 metric tons** by 2050.

This goal requires collaborative regional strategies and action:
TOD Policy, Multi-modal Initiatives, Sustainable Development, etc.

CAP Development | Strategy Selection Process

Literature Review
+1,000 strategies surveyed from leading climate action plans.

Local, County, & State Partners	GHG Reduction Goal by 2050
State	
Colorado	90%
County	
Eagle County	80%
Garfield County	100% *(2030)*
Pitkin County	80%
City and Town	
City of Aspen	80%
City of Glenwood Springs	*Target setting in progress*
Town of Basalt	80%
Town of Carbondale	Net-Zero
Town of New Castle	80%
Town of Snowmass Village	100%



CAP Development | Strategy Selection Process

Literature Review
+1,000 strategies surveyed from leading climate action plans.

Emissions Inventory
Data collected pertaining to RFTA's emissions from fossil fuel and electricity use.

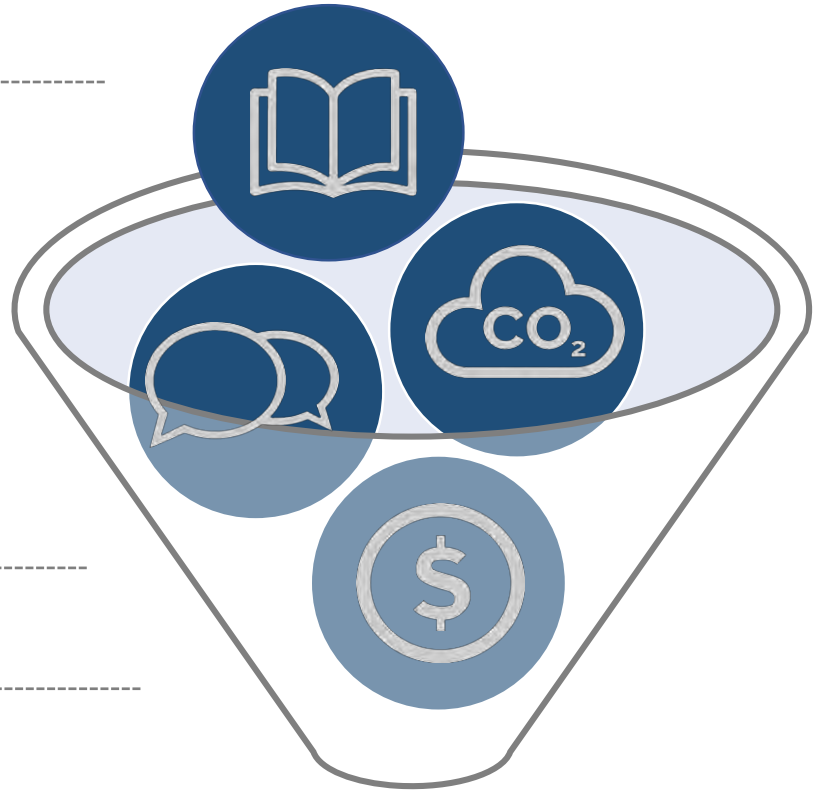
Stakeholder Input
Input solicited from all RFTA member jurisdiction planning departments.

Emissions Reduction Potential
GHG reduction potential quantified for top climate action strategies.

Strategy Evaluation
Monetary cost for each strategy assessed relative to GHG reduction potential

Strategy Confirmation and Selection
RFTA board and agency final review and selection for climate action strategies.

Continuous Monitoring
Annual or semi-annual review of progress toward GHG goals, modification as needed.



CAP Development | Strategy Evaluation

Climate Action Strategies
Emissions From RFTA Fleet
Revenue Fleet
Non-revenue Fleet
Emissions From RFTA Facilities
Electrification Of Facility Operations
Development Of On-site Renewable Energy Systems
Energy Efficiency Measures For Existing Facilities
Advanced Building Codes, Green Standards, And Energy Benchmarking
Emissions Displaced By Transit
Expansion of Transit Priority Lanes
Expansion Of BRT (& Mobility Hubs)
Expansion Of Multi-modal Services
Fare Reductions
Connected Housing, Jobs, And Transit (TOD)

Strategy Evaluation Tool:

RFTA's Cost-Benefit Climate Calculator

A tool for making capital investment decisions based on climate impacts

Inputs: *Climate action strategy category*

- Level of implementation
- Total cost of ownership/implementation
  - Capital costs
  - Operations & maintenance
- Impact on "climate levers"
  - Passenger miles traveled (PMT)
  - Bus miles
  - Fleet composition
  - Facility fuel use

Outputs: *Evaluation Criteria*

- Cost-benefit
  - Economic impact
  - Emissions impact
  - Emissions per dollar spent
  - Emissions per PMT
- Alignment with RFTA strategic plan outcome areas

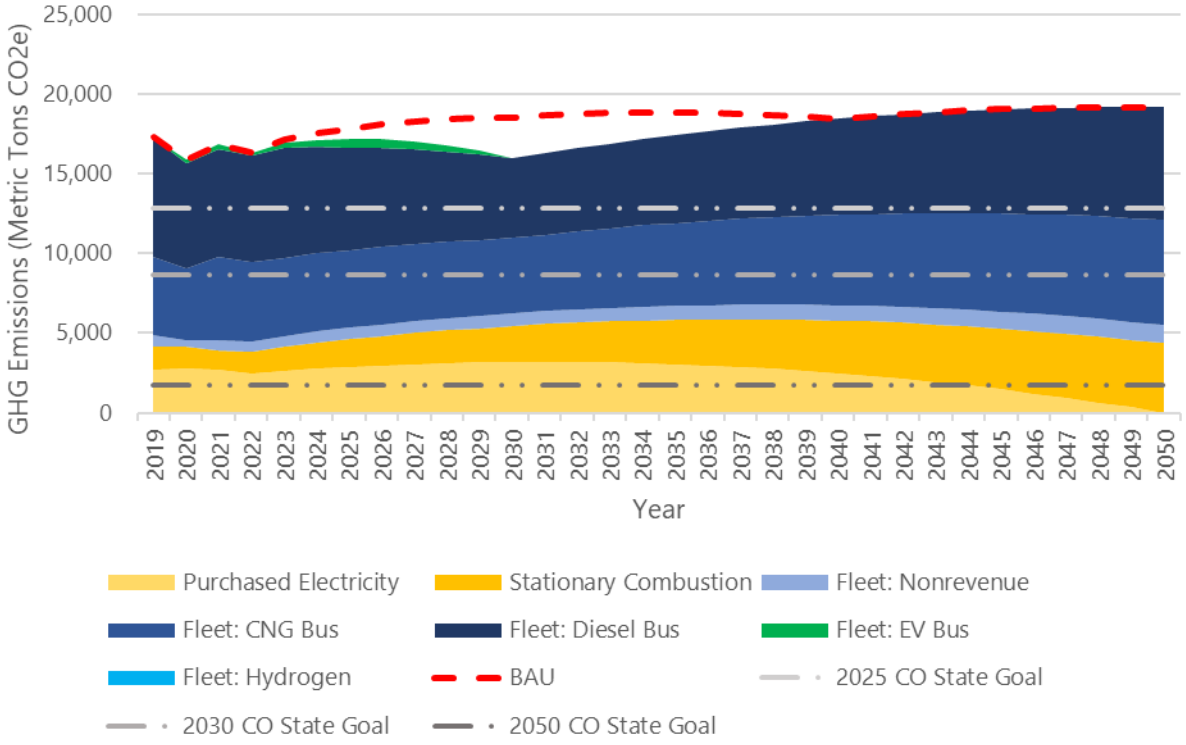
CAP Development | Strategy Evaluation

Climate Action Strategy Categories to be Evaluated
Emissions from RFTA Fleet
Revenue Fleet

Level of Implementation

Destination 2040 – E1: Bus Replacement (1/3 CNG, 1/3 BEB, 1/3 Diesel) **by 2030**

Strategic Plan Outcome Areas



Inputs and Assumptions			
Ridership Percent Increase	**CNG Fleet Share**	**Diesel Fleet Share**	**EV Fleet Share**
3% (Annual)	33%	33%	33%

Cost-Benefit ($/MT CO2e Reduced)	**Climate Outputs:** Net Difference vs BAU Forecast Through 2050		**Emissions vs 2019 Baseline**
	Emissions Displaced (MT CO2e)	**Emissions Produced (MT CO2e)**	
$(126)	0	-22,268	**+11%**

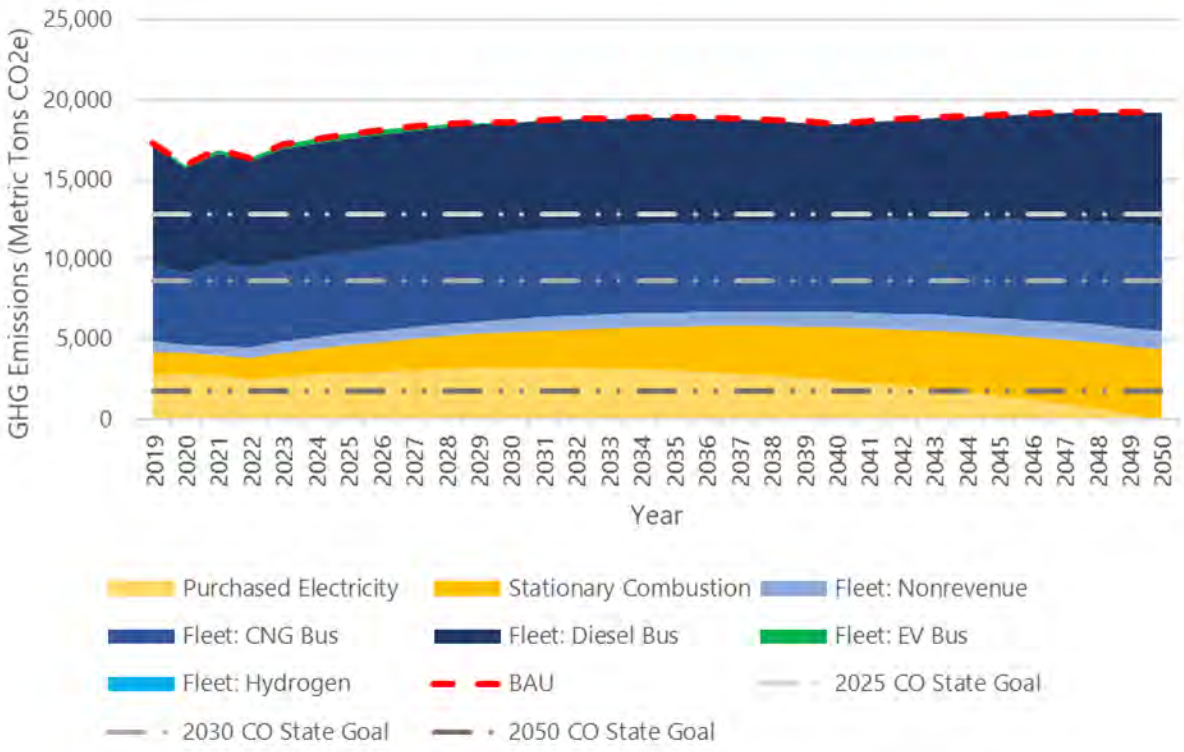
CAP Development | Strategy Evaluation

Climate Action Strategy Categories to be Evaluated
Emissions from RFTA Facilities
Development of On-Site Renewable Energy Systems

Level of Implementation

Destination 2040 – S6: Aspen Maintenance Facility Expansion (Solar PV Addition)

Strategic Plan Outcome Areas



Inputs and Assumptions	
Solar PV Size	**Annual Production**
300 kW	393,909 kWh

Cost-Benefit ($/MT CO2e Reduced)	**Climate Outputs:** Net Difference vs BAU Forecast Through 2050		**Emissions vs 2019 Baseline**
	Emissions Displaced (MT CO2e)	**Emissions Produced (MT CO2e)**	
$560	0	-928	**+11%**

CAP Development | Strategy Evaluation

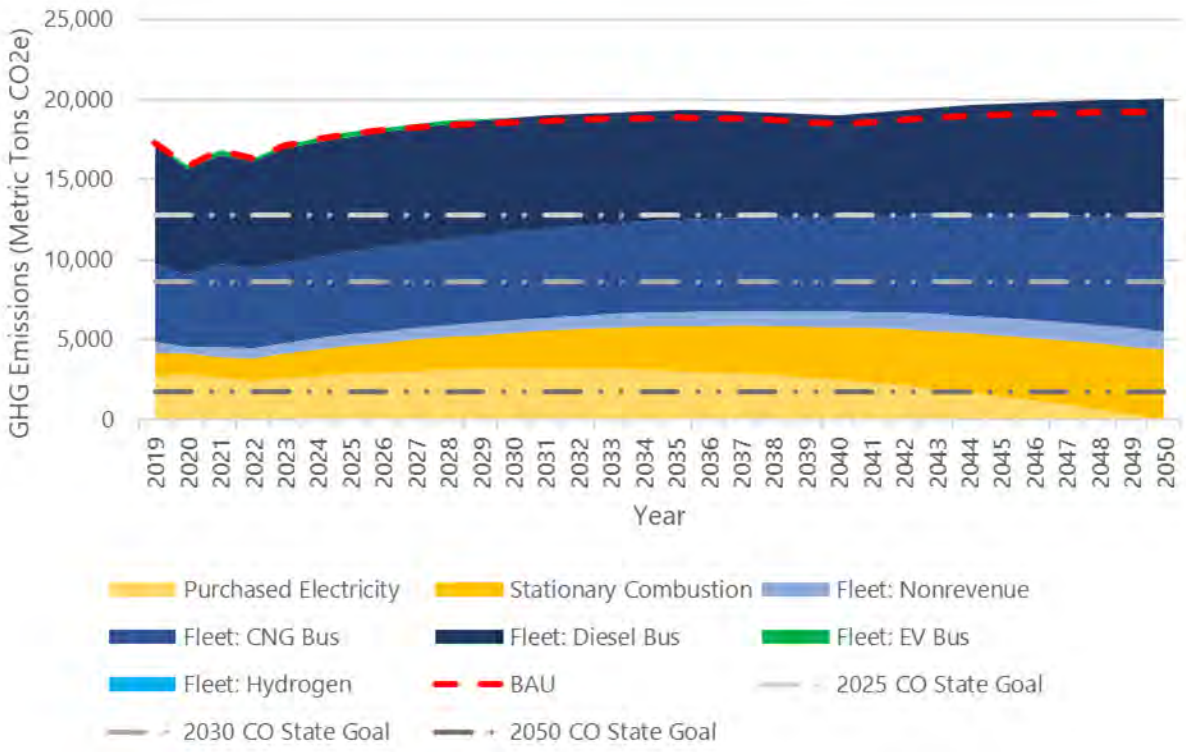
Climate Action Strategy Categories to be Evaluated
Emissions from RFTA fleet
Expansion of BRT (& Mobility Hubs)

Level of Implementation

Destination 2040 – C5: Extend BRT to West Glenwood Springs via 8th St. & Midland

Strategic Plan Outcome Areas

Safe Customers, Workforce and General Public | Accessibility and Mobility | Sustainable Workforce | Satisfied Customers | Environmental Sustainability | High Performing Organization



Inputs and Assumptions	
Ridership Percent Increase	**Reduction in Regional VMT**
10.8% (Total)	10.52%

Cost-Benefit ($/MT CO2e Reduced)	**Climate Outputs:** Net Difference vs BAU Forecast Through 2050		**Emissions vs 2019 Baseline**
	Emissions Displaced (MT CO2e)	**Emissions Produced (MT CO2e)**	
$997	-60,711	17,454	**+16%**

Action Items and Next Steps

Establishing a Vision for the Future
- Kickoff meeting & board presentation
- Facilitated workshop pertaining to the CAP's purpose, need, vision and goals
- National review of leading climate action plans

Climate Action Plan Development
- Modifiable master spreadsheet for measuring CAP criteria, supported by user-friendly, open-source tools
- Evaluation criteria and measurement process for climate action strategies
- Master list of potential strategies
- Documented process for strategy screening and advancement of promising strategies for further development
- Refined set of cost-benefit-based strategies tailored to RFTA's unique operational environment
- Implementation program guidance

Technical Discovery
- Baseline emissions inventory considering RFTA's internal operations and facilities relative to regional transportation and land use trends

Review and Approval
- Agency review and recommendations
- Board review and comment
- Feedback incorporation
- Climate Action Plan finalization and approval *(target April monthly board meeting)*

Plan to be Distributed Prior to May Board Meeting

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